

Stormwater Utility

5-Year Capital Improvement Plan

Fiscal Years 2017-2021



Table of Contents

Overview	Page 3
Categories	Page 3
Table 1: Summary of Projected Capital Investment by Category	Page 5
Capital Improvement Strategy	Page 6
Capital Revenue Sources and Strategy	Page 9
Table 2: Summary of Projected Capital Investment by Revenue Source	Page 9
Operations and Maintenance Impact	Page 10
Program Summary and Project Descriptions by Category	
Table 3: Neighborhood Drainage Improvements	Page 11
Table 4: Roadway Crossing and Channel Improvements	Page 13
Table 5: Major Drainage Rehabilitation Improvements	Page 14
Table 6: Drainage Engineering Analysis	Page 15
Table 7: Technology	Page 16
Table 8: Capital Outlay	Page 17
Past Accomplishments	Page 18
Looking to the Future	Page 18

OVERVIEW

The City of Fort Worth, Transportation and Public Works Department's Stormwater Management Program (SWMP): operates, maintains and improves the City's drainage system; regulates development in the FEMA floodplain; reviews private development for compliance with City drainage standards; and educates the public regarding flood protection and water quality practices. The City's drainage system includes over 900 miles of underground pipe, approximately 300 miles of engineered drainage channel, over 30,000 drainage inlets and numerous other drainage facilities such as detention ponds, bridge culverts, and bar ditches.

The SWMP is responsible for protecting people and property in the City of Fort Worth from harmful stormwater runoff. Fort Worth's SWMP is a very capital-intensive enterprise, which requires continuous investment in extensive above- and below-ground infrastructure. Continued investment in the drainage system is a prerequisite for the health and safety of the community it serves as well as economic growth and prosperity in the future. The 2017-2021 Capital Improvement Plan (CIP) totals \$67,387,200 and funds capital improvements required to mitigate floodrisk, ensure system reliability by replacing aging infrastructure and facilities, support the City's bond programs for street rehabilitation, meet corporate priorities, and facilitate economic revitalization in areas where development is hampered by chronic flooding.

CATEGORIES

The SWMP's 2017-2021 CIP funds investments in the following 6 categories:

1. Neighborhood Drainage Improvements

Projects to mitigate flooding problems in neighborhoods generally arising from local drainage systems with inadequate capacity for large rain events.

2. Roadway Crossing and Channel Improvements

Projects to protect motorists from the risk of dangerous road overtopping.

3. Major Drainage Rehabilitation Improvements

Projects to create or upgrade drainage facilities such as detention ponds and natural creeks to mitigate regional flooding risk and/or erosion problems that pose a public safety risk or threaten private property and/or public infrastructure.

4. Drainage Engineering Analysis

Engineering efforts to assess, prioritize, and develop conceptual solutions for flooding problems throughout the City.

5. Technology

Included in this category are: initiatives to update the SWMP Geographic Information System (GIS) with data on the existing drainage system that is key to the assessment of floodprone areas and the

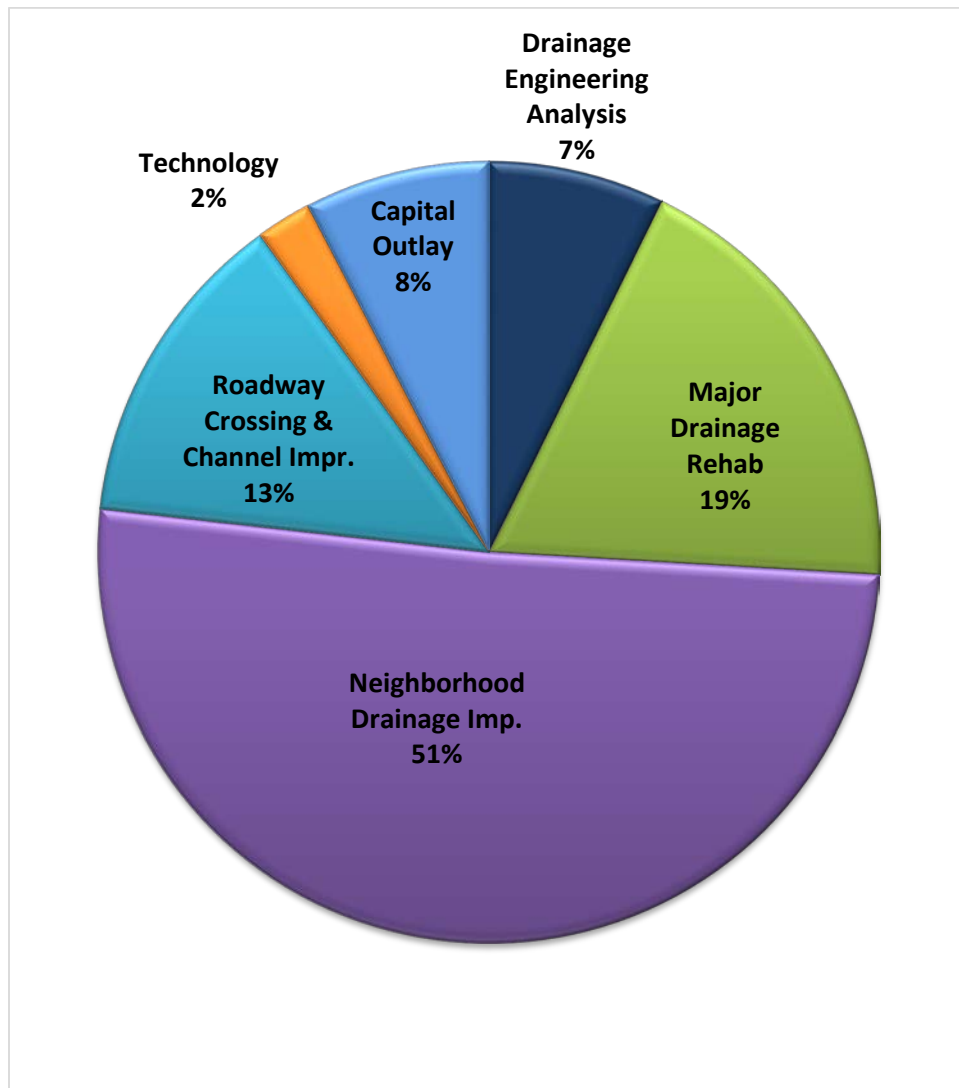
Stormwater Utility – 5-Year Capital Improvement Plan (FY2017-FY2021)

development of flood mitigation projects, development of an early warning system for flooding, and periodic updates in the billing system software to keep the system from going obsolete.

6. Capital Outlay

Capital asset purchases to support operations and maintenance of the SWMP including routine replacement of heavy equipment & vehicles, minor tools & equipment and technology.

The FY2017-FY2021 CIP investment totaling \$67.4M by category is shown below.



Stormwater Utility – 5-Year Capital Improvement Plan (FY2017-FY2021)

Summary of Projected Capital Investment by Category

The following table provides an overview of planned capital investment by Category for FY2017-2021 SWMP CIP.

Table 1

Categories:	FY2017	FY2018	FY2019	FY2020	FY2021	Total 5 Yr. CIP
Neighborhood Drainage Improvements	\$ 9,178,900	\$ 3,191,400	\$ 7,750,700	\$ 4,685,100	\$ 9,459,100	\$ 34,265,200
Roadway Crossing & Channel Improvements	\$ -	\$ 4,955,000	\$ 200,000	\$ 3,785,000		\$ 8,940,000
Major Drainage Rehab	\$ 2,017,200	\$ 3,000,000	\$ 2,500,000	\$ 2,551,200	\$ 2,500,000	\$ 12,568,400
Drainage Engineering Analysis	\$ 700,000	\$ 850,000	\$ 1,300,000	\$ 1,250,000	\$ 800,000	\$ 4,900,000
Technology	\$ 750,000	\$ 650,000	\$ -	\$ -	\$ 150,000	\$ 1,550,000
Capital Outlay	\$ 957,300	\$ 982,900	\$ 1,068,700	\$ 1,174,500	\$ 980,200	\$ 5,163,600
Total	\$ 13,603,400	\$13,629,300	\$12,819,400	\$13,445,800	\$13,889,300	\$ 67,387,200

CAPITAL IMPROVEMENT STRATEGY

The SWMP's Capital Improvement Strategy is driven by its mission to protect people and property from harmful stormwater runoff. The CIP is informed by many sources from within the SWMP and the City as well as external entities. These sources include:



- **Planning effort/risk assessments:** The SWMP conducts engineering assessments to understand the degree and cause of flooding in various parts the City and develop conceptual alternatives to mitigate the risk. This information is used to prioritize the use of capital improvement funding and to develop tools for comparing and explaining the relative level of floodrisk throughout the City.
- **Historical flooding/customer reports:** The SWMP investigates customer reports of drainage problems. If the reported problem is something for which the SWMP is responsible, projects are initiated to correct problems that are within the existing resource capacity of the program. When current resources aren't sufficient to initiate corrective action, the problem is prioritized with other unfunded needs for project initiation as priorities and funding availability allows.

Stormwater Utility – 5-Year Capital Improvement Plan (FY2017-FY2021)

- **Corporate Priorities:** The SWMP provides drainage improvements or relocation projects in support of City Council-approved priority programs for the development of the city. Examples of these types of programs include the Trinity River Vision initiative and the Cultural District improvements.
- **Development Agreements/Community Facilities Agreements:** The Policy for the Installation of Community Facilities approved by the City Council provides for the SWMP's participation in upsizing drainage facilities from the size required to accommodate a proposed development to the size required to mitigate floodrisk in the broader area. The SWMP's staff is in regular contact with the development community to identify opportunities for collaboration.
- **Collaboration with other public entities:** In developing flood mitigation alternatives, sometimes the property of other public entities is located in an area where a drainage improvement could be effective and/or the interests of another public entity could be served by drainage improvements. In such cases, SWMP staff engages with staff from the other entity to determine if there is an opportunity for a mutually beneficial project. Past efforts in this regard have resulted in partnerships with entities such as: the Fort Worth Independent School District and the Fort Worth Transportation Authority.
- **Legislative and Regulatory Mandates:** The Federal Government through the U.S. Environmental Protection Agency (USEPA) and the Texas Legislature through the Texas Commission on Environmental Quality (TCEQ) regulate the operation and maintenance of the City's drainage system through the Municipal Separate Storm Sewer System (MS4) permit program. Various aspects of the SWMP CIP are key to maintaining compliance with MS4 permit requirements. Similarly, the effective execution of the SWMP is a key part of the City's standing with the Federal Emergency Management Agencies National Flood Insurance Program.
- **Condition Assessment and Maintenance History:** A high priority for the SWMP is to optimize the performance and maintainability of the existing system. Toward that end investments are made in: rehabilitating degraded drainage channels to perform as designed and to facilitate ongoing maintenance; assessing the pipe system to develop a criticality ranking so that repair and rehabilitation funds can be directed to the most critical parts of the system; maintaining and expanding the GIS map for the system to make the assessment and response to drainage problems as efficient as possible; and technology and fleet upgrades that enhance efficiency in maintaining, repairing, and improving the system. SWMP staff routinely inspects various aspects of the City's drainage system, either visually or via Closed Circuit Television, to identify, prioritize, and program rehabilitation and maintenance projects. The SWMP's work order system is also invaluable in identifying recurring drainage problems so that in depth investigation can identify underlying causes and develop solutions.
- **Coordination with the CIP's of other City Departments/Divisions:** The SWMP coordinates with other departments and divisions such as TPW Capital Delivery, Water, Parks, and Planning and Development to identify areas where priorities and plans overlap so that collaborative projects can be developed that achieve multiple goals.

CIP Priority Criteria

The SWMP CIP is directly linked to the goals of: public safety, improving neighborhoods and communities, removing structures from floodplains, and encouraging economic growth. The SWMP's specific goals and project prioritization scores are aligned with City-wide strategic goals as reflected in the capital project prioritization system used for the City's Comprehensive Plan as follows:

Project Drivers

- Regulatory Risk
- Capacity
- Capital Replacement
- Efficiency/Sustainability

Tactical

- Citizen/Customer Satisfaction
- Prior CIP Approval
- Partnering Opportunity
- Healthy Environment

Strategic

- Safest City
- Improve Mobility
- Clean/Attractive City
- Strong Economy
- Development/Sustainability
- Improve Air Quality

Other Factors

- Inter-Organizational / Joint Infrastructure
- Leverage Funding
- Obligatory
- Time Sensitive

CAPITAL REVENUE SOURCES AND STRATEGY

The SWMP has identified funding for the \$67.4 million, five-year CIP from a variety of revenue sources, including Pay as You Go Cash (PayGo) from rate revenues and funds remaining from the Drainage Revenue Bond program.

Pay as You Go:

PayGo for capital is budgeted each year and recovered through the rates charged to the SWMP's ratepayers. Cash reserved for capital in 2017 totals \$10.6 million. Over the next five years the SWMP plans to increase its annual cash investment in the CIP each year to \$13.9 million in 2021. FY2017-2021 investment in annual Pay as You Go is \$63.1M.

Drainage Revenue Bond Program:

Since the establishment of the Stormwater Utility fee in 2006, the SWMP has sold a total of \$150 million in Revenue Bonds in 3 different issuances: 2007 (\$25 million), 2009 (\$45 million), and 2011 (\$80 million). The size and timing of future revenue bond sales will be determined by City leadership based on overall City priorities and within established financial and programmatic guidelines (e.g. debt to revenue ratios, reserve requirements, pay-go to debt proportions). FY2017-2021 will allocate \$4.3M of funds remaining from the Drainage Revenue Bond program to capital.

Summary of Projected Capital Investment by Revenue Source

The following table provides an overview of identified revenue sources to fund the anticipated appropriation schedule for FY2017-2021 SWMP CIP. The appropriation is scheduled to support planned projects.

Table 2

Funding Sources:	FY2017	FY2018	FY2019	FY2020	FY2021	Total 5 Yr. CIP
Pay as You Go	\$ 10,613,567	\$ 12,293,900	\$ 12,819,400	\$ 13,445,800	\$ 13,889,300	\$ 63,061,967
Stormwater Revenue Bonds	\$ 2,989,833	\$ 1,335,400				\$ 4,325,233
Total	\$ 13,603,400	\$ 13,629,300	\$ 12,819,400	\$ 13,445,800	\$ 13,889,300	\$ 67,387,200

OPERATIONS AND MAINTENANCE IMPACT

Most of the improvements in the 2017-2021 SWMP CIP will improve existing systems to function more effectively. New infrastructure that functions more effectively than the existing system translates into reduced maintenance and repair expenses. Some of the projects will create new detention facilities that will require periodic maintenance. These new expenses, though, are expected to be more than offset by reduced maintenance requirements resulting from the upgrades made via the overall program with no net increase to O&M costs.



PROGRAM SUMMARY BY CATEGORY

1. NEIGHBORHOOD DRAINAGE IMPROVEMENTS

Projects to mitigate flooding problems in neighborhoods generally arising from local drainage systems with inadequate capacity for large rain events.

Program Summary: Neighborhood Drainage Improvements

Table 3

Projects:	FY2017	FY2018	FY2019	FY2020	FY2021	Total 5 Yr. CIP
Dry Branch Creek Detention	\$ 600,000					\$ 600,000
Eastern Arlington Heights/Montgomery	\$ 3,000,000					\$ 3,000,000
Eastern Hills Drainage Improvements	\$ 1,917,500					\$ 1,917,500
Hammond Street Drainage Improvements		\$ 200,000	\$ 3,514,800			\$ 3,714,800
Kimbo Court Drainage Improvements	\$ 700,000	\$ 100,000				\$ 800,000
Minor Repair & Renovations - Easements	\$ 50,000	\$ 50,000	\$ 151,100	\$ 50,000	\$ 50,000	\$ 351,100
Minor Repair & Renovations - Paving & Concrete	\$ 480,000	\$ 500,000	\$ 520,000	\$ 550,000	\$ 550,000	\$ 2,600,000
Overton Woods Drainage Improvements	\$ 2,431,400					\$ 2,431,400
Overton South Detention (Upper Willow Lake Channel)		\$ 300,000		\$ 4,085,100		\$ 4,385,100
Westcliff Drainage		\$ 1,641,400			\$ 8,859,100	\$ 10,500,500
Washington Heights Drainage Improvements		\$ 400,000	\$ 3,564,800			\$ 3,964,800
Total	\$ 9,178,900	\$ 3,191,400	\$ 7,750,700	\$ 4,685,100	\$9,459,100	\$ 34,265,200

FY2017 Project Descriptions:

Dry Branch Creek Detention Improvements

The Dry Branch Creek study area west of Beach Street extends from E. Belknap Street northward to NE 28th Street. Dry Branch Creek, within the Riverside Neighborhood, routinely floods, and the existing stream, bridge

and storm drain capacities are inadequate. One of two proposed detention basins will be constructed from Hollis Street to Blandin Street.

Eastern Arlington Heights/Montgomery

This project is located immediately west of Montgomery St and Harley Ave. It will extend expanded drainage infrastructure into the Eastern Arlington Heights neighborhood and connect it to the large system installed a few years ago running under Harley Ave to Trinity Park. This project will reduce the risk of road and structure flooding in the area.

Eastern Hills Drainage Improvements

The project is located in Eastern Hills subdivision generally bounded by Jacqueline Road, Meadowbrook Drive, Oakhill Road, and Weiler Blvd. The existing storm drain system is undersized, resulting in roadway overtopping. Phase 3 and 4 are part of a multi-phase program for the subdivision. New storm drains will be installed in the area to complete the program.

Hammond Street Drainage Improvements

The project is located on Hammond Street between Timothy and IH-35W. The downstream storm drain system is undersized, and during heavy storms, the roadway overtops at the intersection of Hammond and Burleson causing flooding of homes. A new storm drain system for the Hammond Street area upstream of IH-35W will be installed.

Kimbo Court Drainage Improvements

The project is located on Kimbo Court west of Bonnie Brae. The current drainage system is inadequate. A storm drain system will be installed in conjunction with the Kimbo Road Street project.

Minor Repair & Renovation – Easements

These funds are used to purchase easements associated with reactive projects that come up during the course of each year.

Minor Repair & Renovation – Paving & Concrete

This is a budget item to cover the cost of concrete and paving associated with Field Operations infrastructure and pipe repair projects. The concrete/paving work item extends the useful life of the infrastructure asset and is, therefore, a capital expenditure.

Overton Woods Drainage Improvements

This project is located on Briarhaven Road between Bellaire Drive and the Trinity River. The roadway is overtopped by runoff, and numerous flood insurance policies in the area indicate widespread flooding. The solution has not been completely defined, but will include a new drainage system with multi-barrel culverts. The project will be constructed in conjunction with the Bellaire Roundabout project.

Overton South Detention (Upper Willow Lake Channel)

This project will develop a plan to address both stream flooding and overland flooding throughout the Overton South neighborhood. The project will develop a specific configuration to utilize the 4 acres of vacant flood prone property south of IH 20 that was acquired by the City for regional detention and to determine limits of channel improvements needed to accommodate any drainage improvements. This detention is going to be the first phase of improvements needed for future drainage improvements within the Overton South neighborhood to alleviate an undersized channel and undersized storm drains system. Until this detention is built, no improvements can be installed to alleviate home flooding along Westlake Drive.

Westcliff Drainage

Home flooding has occurred in some locations in all of the Westcliff North and Westcliff South Drainage Basins. Westcliff Drainage Improvements is a multi-project program in the area. Phase 2B is located south of Bilglade Road, north of Berry Street, east of Manderly Place and west of Cockrell Avenue. This project will construct a storm drain and tie into the previously constructed Surrey storm drain. Full effectiveness will be achieved when Phase 1 is constructed.

Washington Heights Drainage Improvements

The project addresses the existing undersized storm drain system downstream of Meacham Airport from 38th and Houston Streets, down to 35th and Calhoun Streets. During heavy rain events, 38 residences and historic businesses in the Washington Heights area are at risk of flooding and runoff overtops Commerce, Main, 35th and Calhoun Streets. New storm drains will be installed along Houston Street from 38th Street to 36th Street and along 36th Street from Houston to Main Street, outfalling into a proposed detention basin at Main and 36th Street.

2. ROADWAY CROSSING AND CHANNEL IMPROVEMENTS

Projects to protect motorists from the risk of dangerous road overtopping.

Program Summary: Roadway Crossing and Channel Improvements

Table 4

Projects:	FY2017	FY2018	FY2019	FY2020	FY2021	Total 5 Yr. CIP
Lebow Channel Roadway Crossing		\$ 4,955,000				\$ 4,955,000
Shore View Road Culvert Improvements			\$ 200,000	\$ 3,785,000		\$ 3,985,000
Total	\$ -	\$ 4,955,000	\$ 200,000	\$ 3,785,000		\$ 8,940,000

FY 2017 Project Descriptions:

Lebow - Channel Roadway Crossing

The Brennan Crossing is part of the multi-phase Lebow Channel Roadway Crossing Project. The existing culverts are undersized, resulting in roadway overtopping. A multi-barrel culvert will be installed. Public Art will be included.

Shore View Road Culvert Improvements

The project is located at Shoreview Drive, west of Bomber Road. Shoreview Drive is the primary route of ingress and egress to neighborhoods west of the NAS JRB. Meandering Road Creek overtops Shore View Drive during major storm events, which blocks access for residents and emergency vehicles. Box culverts will be installed to increase conveyance capacity.

3. MAJOR DRAINAGE REHABILITATION PROJECTS

Projects to create or upgrade drainage facilities such as detention ponds and natural creeks to mitigate regional flooding risk and/or erosion problems that threaten private property and/or public infrastructure.

Program Summary: Major Drainage Rehabilitation Improvements

Table 5

Projects:	FY2017	FY2018	FY2019	FY2020	FY2021	Total 5 Yr. CIP
Major Drainage Rehab - Reactive/Property Acquisition	\$ 2,017,200	\$ 2,500,000	\$ 2,500,000	\$ 2,051,200	\$ 2,500,000	\$ 11,568,400
Forty Oaks Drainage Improvements		\$ 200,000		\$ 500,000		\$ 700,000
Total	\$ 2,017,200	\$ 2,700,000	\$ 2,500,000	\$ 2,551,200	\$ 2,500,000	\$ 12,268,400

FY2017 Project Descriptions:

Major Drainage Rehabilitation - Reactive Drainage Improvements/Property Acquisition

This is funding set aside to respond to urgent issues that develop/are discovered in the drainage system during the course of the year that need immediate response. Such issues are typically corrected by an open-ended task order contract or, on some occasions, by SWMP field operations crews. Additionally, these funds can be used when appropriate to purchase private property to facilitate drainage improvements.

Forty Oaks Drainage Improvements

The project is in Lower Como Creek between Collett Park and Bonnell Avenue, behind homes fronting on Driskell Blvd. Progressive creek erosion is causing property damage in the back of residential property along Driskell Blvd. Structural and gravity erosion control improvements to arrest damaging erosion and preserve property will be installed.

4. DRAINAGE ENGINEERING ANALYSIS

Engineering efforts to assess, prioritize, and develop conceptual solutions for flooding problems throughout the City.

Program Summary: Drainage Engineering Analysis

Table 6

Projects:	FY2017	FY2018	FY2019	FY2020	FY2021	Total 5 Yr. CIP
Emergency Engineering Evaluations		\$ 150,000	\$ 150,000	\$ 150,000	\$ 150,000	\$ 600,000
Project Development & Prioritization	\$ 600,000	\$ 600,000	\$ 600,000	\$ 600,000	\$ 600,000	\$ 3,000,000
Drainage Infrastructure - Pipe Condition & Assessment			\$ 400,000	\$ 400,000		\$ 800,000
Water Quality Assessment - Geomorph			\$ 150,000			\$ 150,000
Flood Warning Assessment	\$ 100,000	\$ 100,000		\$ 100,000	\$ 50,000	\$ 350,000
Total	\$ 700,000	\$ 850,000	\$ 1,300,000	\$ 1,250,000	\$ 800,000	\$ 4,900,000

FY2017 Project Descriptions:

Emergency Engineering Evaluations

These evaluations are performed by consultants on an as needed basis to identify drainage solutions that mitigate flood risk and increase the level of service of responses to citizen concerns regarding localized flooding.

Project Development & Prioritization

Consultant services to identify City-wide flood problems and prioritize areas for high level strategic planning and more detailed feasibility planning. Based on findings, projects are developed that are effective, acceptable to the community, and affordable. These projects are then programmed into the 5-year SWMP CIP for implementation as priorities and funding availability allows.

Drainage Infrastructure- Pipe Condition and Assessment

The Pipe Condition Assessment Program provides a City-wide assessment of pipe conditions by rating pipe condition supported by video documentation. This information is used to determine maintenance and future project needs.

Channel Flood Assessment-Water Quality- Geomorph

This is for a consultant contract to develop engineered solutions for erosion control problems based on the nature of stream and bank instabilities determined by geo-morphology specialists.

Advance Flood Warning Assessment

This funding will be used for consultant services to evaluate the feasibility of real time flood modelling for the purpose of providing advance warning of flooding so that cautionary measures can be taken and warnings issued in advance of the hazard developing.

5. TECHNOLOGY

Included in this category are: initiatives to update the SWMP Geographic Information System (GIS) with data on the existing drainage system that is key to the assessment of floodprone areas and the development of flood mitigation projects, development of an early warning system for flooding, and periodic updates in the billing system software to keep the system from going obsolete.

Program Summary: Technology

Table 7

Projects:	FY2017	FY2018	FY2019	FY2020	FY2021	Total 5 Yr. CIP
Infrastructure GIS Data Mgmt - Channel Infrastructure	\$ 500,000	\$ 500,000				\$ 1,000,000
Advance Flood Warning System Upgrade	\$ 250,000				\$ 150,000	\$ 400,000
Stormwater Billing Tools Programming Update		\$ 150,000				\$ 150,000
Total	\$ 750,000	\$ 650,000	\$ -	\$ -	\$150,000	\$ 1,550,000

FY2017 Project Descriptions:

Infrastructure GIS Data Management – Channel Infrastructure

This funding is to gather key data on drainage channels around the City and add the information to the SWMP GIS system. These data are key to understanding the performance of the drainage system and planning solutions to flooding problems.

Stormwater Utility – 5-Year Capital Improvement Plan (FY2017-FY2021)

Advance Flood Warning System Upgrade

This funding will pay for periodic upgrades to the software system used in the High Water Warning System to send alerts to remote users of the system.

Stormwater Billing Tools Programming Update

This funding is for updates to the software system used in the calculation for billing of Stormwater Utility fees.

6. Capital Outlay

Capital asset purchases to support operations and maintenance of the SWMP including routine replacement of heavy equipment & vehicles, minor tools & equipment and technology.

Program Summary: Capital Outlay

Table 8

Projects:	FY2017	FY2018	FY2019	FY2020	FY2021	Total 5 Yr. CIP
Maintenance Vehicles & Equipment Replacement	\$ 750,000	\$ 750,000	\$ 750,000	\$ 750,000	\$ 750,000	\$ 3,750,000
Minor Tools & Equipment	\$ 107,000	\$ 110,000	\$ 113,000	\$ 116,000	\$ 119,000	\$ 565,000
IT Hardware & Software	\$ 93,100	\$ 95,400	\$ 97,800	\$ 100,200	\$ 102,700	\$ 489,200
Rain and Stream Gauges			\$ 100,000	\$ 200,000		\$ 300,000
Minor Office Equipment & Furnishings	\$ 7,200	\$ 7,500	\$ 7,900	\$ 8,300	\$ 8,500	\$ 39,400
IT Data Storage		\$ 20,000				\$ 20,000
Total	\$ 957,300	\$ 982,900	\$ 1,068,700	\$ 1,174,500	\$ 980,200	\$ 5,163,600

FY2017 Project Descriptions:

Maintenance Vehicles & Equipment Replacement

Routine replacement of heavy equipment & vehicles supporting maintenance of existing infrastructure.

Minor Tools & Equipment

Routine replacement of capital tools and equipment used in the daily course of operations including construction and maintenance operations. Examples of tools and equipment include: weed eaters, chain saws, concrete vibrators, air compressors, commercial backpack blowers, electric dowling drills, handheld concrete saws, gas powered mixers, and nozzles for vacuators.

Stormwater Utility – 5-Year Capital Improvement Plan (FY2017-FY2021)

IT Hardware & Software

Scheduled replacement of Information Technology hardware and software including desktops and mobile data computers supporting daily operations for office and field maintenance personnel.

Rain and Stream Gauges

Rain and stream gauges for monitoring flooding, providing planning data and supporting the Advanced Warning System.

Minor Office Equipment & Furnishings

Routine replacement of capital tools and equipment used

Information Technology Data Storage

Hard drive data storage for servers and networks supporting GIS and drainage planning including video, LIDAR, pictures and engineering analysis.

PAST ACCOMPLISHMENTS

Over the last five years, the SWMP has expended an average of \$22 million/year for flood mitigation capital projects.

Some of the most significant projects for which funds were expended in FY2012-2016 include:

- East Rosedale Culvert Improvements
- Butler-McClure Culvert Improvements
- Cromwell Marine Creek Culvert Improvements
- Forest Park-Parkview Storm Drain Rehabilitation
- Lebow Channel Crossing – Dewey Street
- Eastern Hills Drainage Improvements Phases 1 and 2
- Central Arlington Heights-Ashland Drainage Improvements
- Mercado Channel Improvements
- Central Arlington Heights-Western Drainage Improvements
- Trinity Boulevard Culvert Improvements

LOOKING TO THE FUTURE

The SWMP 5-year CIP is based on the remaining revenue bond funds from previous debt sales plus about \$11 million/year on pay-as-you go funding from stormwater utility fee revenue. This level of funding only enables reduction of flooding through smaller, incremental projects. There are significantly more flooding problems than can be addressed at that funding level. SWMP staff estimate that it would cost roughly \$300 - \$400 million to substantively address the flood risks in the City that are considered to represent critical public safety risks. It would take decades to address all of these situations based on a gradual growth in the pay-as-you-go

Stormwater Utility – 5-Year Capital Improvement Plan (FY2017-FY2021)

funding based on growth in the revenue base. Beyond the critical needs are nuisance drainage issues (some chronic and severe) that would take another several hundred million dollars to correct.

In FY2017, the SWMP will be updating its master plan. A significant element of that will be refinement of policies and strategies regarding flood mitigation in the City of Fort Worth. The process to update the master plan will include a significant public input component to seek to ensure that flood mitigation policies and strategies reflect a consensus of the community. The updated master plan will refine and proportion the “tool bag” for mitigating flooding in Fort Worth, seeking to optimize program effectiveness by: ensuring that flood protection level of service goals are realistic and consistent with community desires; considering the appropriate use of property buy outs and flood warning in lieu of capital improvements; becoming increasingly opportunistic about public-public and public-private partnerships; and ensuring that the method for prioritizing needs is reflective of the community consensus.

Among the most significant flooding problems that are not addressed by the current Stormwater 5-year CIP are those in: Western Arlington Heights, the Forest Park Blvd/West Berry Street area, the Near West Side/Linwood area, the Near Southside area, and the Lebow Channel area on the north side of town.